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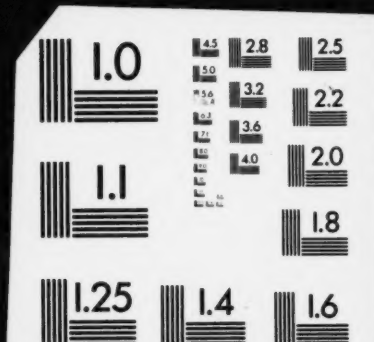
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FOREST ANALYSIS BRANCH

Urgent timber supply review for the Merritt timber supply area

Public Discussion Paper

B.C. Ministry of Forests
1520 Blanshard Street
Victoria, B.C.
V8W 3J9

April 2005



Public Discussion Paper

Introduction

The British Columbia Ministry of Forests regularly reviews the timber supply* for all timber supply areas (TSA)* and tree farm licences (TFL)* in the province. This review, the third for the Merritt TSA, examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, if necessary, the chief forester will determine a new allowable annual cut (AAC) for the Merritt TSA.

By law, the chief forester must review and set new AACs for all 37 TSAs and 34 TFLs every five years. The chief forester can postpone a timber supply review for up to five more years if the AAC is not expected to change significantly.

The chief forester may also set a new harvest level earlier than five years to deal with abnormal situations such as damage from severe wildfires or catastrophic insect infestations.

The objectives of the timber supply review are to:

- Examine relevant forest management practices, public input, and economic, environmental and social factors;
- Set a new AAC for the next five years; and

- Identify information to be improved for future timber supply reviews.

Urgent timber supply review in the Merritt TSA

Mountain pine beetle epidemics are natural events, however, the current infestation has reached an unprecedented level in B.C.'s history. Provincial annual aerial survey data shows the beetle had affected about seven million hectares in 2004. Of the total area affected, 63% sustained light or trace mortality, 26% moderate mortality and 11% severe mortality.

In 2003, the aerial survey indicated 7,500 hectares of infestation in the Merritt TSA as a result of the 2002 mountain pine beetle flight. The 2004 aerial survey data indicates a four-fold increase in beetle populations despite aggressive management strategies and recent population declines. Close to 30,000 hectares are affected from the 2003 mountain pine beetle flight, with fieldwork showing expansion ratios ranging from 4:1 up to 100:1. The expansion from the 2004 mountain pine beetle flight will not be known until the early summer when the attacked trees turn red.

Lodgepole pine is the leading component of 70% of the stands in the Merritt TSA, making up 50% of the volume within the timber harvesting land base.

The mountain pine beetle is at an early stage of expansion so intervention may mitigate the

economic and environmental impacts. For this reason, the chief forester is considering an urgent review of the timber supply and AAC in the TSA.

The objectives of this document are to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Merritt TSA, and to encourage them to provide comments. Public comments will be accepted for 30 days, until May 12, 2005.

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester will outline his determination in a rationale statement that will be publicly available upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

**Throughout this document, an asterisk after a word or phrase indicates that it is defined in a box at the foot of the page.*

Timber supply

The amount of timber that is forecast to be available for harvesting over a specified time period, under a particular management regime.

Timber Supply Area (TSA)

An integrated resource management unit established in accordance with Section 7 of the Forest Act.

Tree Farm Licence (TFL)

Provides rights to harvest timber and outlines responsibilities for forest management in a particular area.

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Description of the Merritt timber supply area

Description of the TSA

As shown in Figure 1 the Merritt TSA is located in south-central B.C. and covers approximately 1.13 million hectares of the Southern Interior Forest Region. It is administered by the Cascades Forest District.

The Merritt TSA includes the mountainous terrain and steep river valleys of the Cascade Mountains in the west and the relatively dry, flat Thompson Plateau in the east. The TSA encompasses two major river systems: the Similkameen and the Nicola. To the north of the Merritt TSA is the Kamloops TSA, to the west are the Lillooet and Fraser TSAs, and to the east is the Okanagan TSA. Manning Park, Cathedral Park and the Canada-United States border lie to the south.

The major population centres are Merritt and Princeton, where about 60% of the TSA's population reside. Smaller communities include Tulameen, Brookmere, Missezula Lake, Douglas Lake, Lower Nicola, Osprey Lake and Allison Lake.

Land use planning

Currently there is no land and resource management plan in the Merritt TSA. Proposed protected areas have been identified and will be established at the completion of a higher-level plan, such as a land and resource management plan. No date has been set to

begin a higher-level plan process. Only land use planning decisions regarding forest practices that have received final approval from government will be reflected in this timber supply review.

The natural resources

Numerous natural resources are associated with the forest land in the Merritt TSA. These include forest products, forage, minerals, fish, wildlife, and recreation and tourism opportunities. Extensive grassland and forested areas provide important forage for both livestock and wildlife.

Apart from lodgepole pine stands, which occupy about two-thirds of the timber harvesting land base, the forests of the Merritt TSA include Douglas-fir, spruce, ponderosa pine, trembling aspen and subalpine fir. The timber harvesting land base — the area considered available for harvesting — makes up about 58% of the Merritt TSA.

The diverse landscapes of the Merritt TSA provide a variety of wildlife habitats, including grasslands, lakes and wetlands, forested slopes, and alpine areas. At lower elevations mule deer, moose, black bear and many smaller furbearers, as well as many species of birds and amphibians, are common. Grizzly bears also occur within the TSA and although their population is low, this area is part of the Canada/USA North Cascades grizzly bear population unit and may be subject to future recovery planning efforts.

B.C.'s forest practices legislation includes a process for identifying species at risk that require special management. Currently, there are 16 species identified as at risk that may be found in the Merritt TSA, including tailed frog, prairie falcon and white-headed woodpecker.

Water is a primary and fundamental resource of the Merritt TSA. Numerous rivers, lakes and streams support many species of fish, such as rainbow trout, kokanee, burbot, mountain whitefish, eastern brook trout, bull trout and steelhead. Coho, chinook and pink salmon spawn in the Nicola River. Significant demands are also placed on water resources for domestic and agricultural purposes. There are currently 10 community watersheds within the Merritt TSA.

Parks, recreation sites and trails, and roaded and non-roaded areas provide opportunities for numerous outdoor activities. Residents and tourists enjoy recreation activities such as hiking, camping, hunting, fishing, wildlife watching, boating, mountain-biking, snowmobiling, and ski touring. The TSA includes a number of small parks and popular recreation areas in the vicinity including the Coquihalla Summit, Cascade Recreation Area, Manning Park and Cathedral Park. Recreation visits have increased significantly since the completion of the Coquihalla highway and the Okanagan connector.

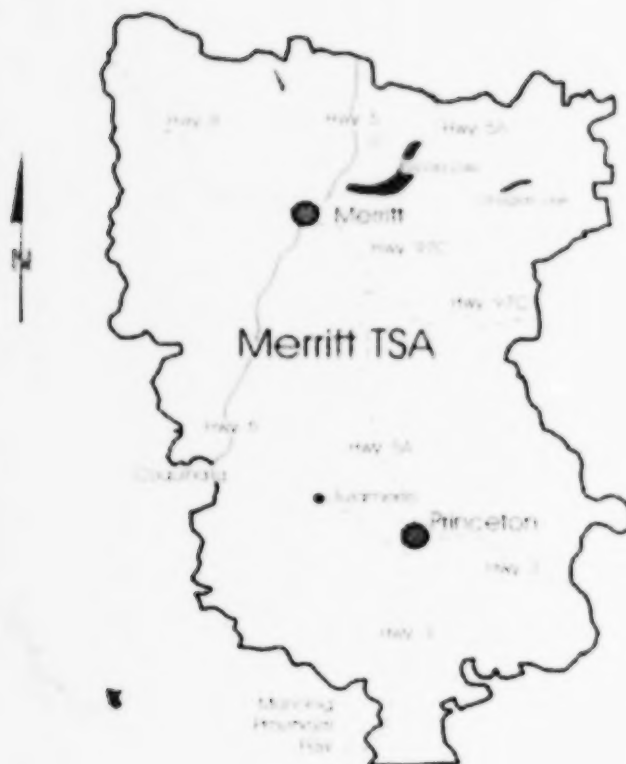


Figure 1. Map of the Merritt TSA.

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Current annual cut

In January 2002, the chief forester established an AAC in the Merritt TSA of 1,508,050 cubic metres. This included a partition of 312,500 cubic metres in small-diameter pine stands, often called "smallwood" and excludes the harvest associated with woodlot licences.

In January of 2004, the regional executive director of the Southern Interior Forest Region granted a temporary increase in harvest level to the Nicola-Similkameen Innovative Forestry Society (NSIFS) of 330,700 cubic metres a year to reflect innovative practices and activities. This uplift was granted under an Innovative Forest Practices Agreement (IFPA). As a result, the current allowable cut level in the Merritt TSA totals 1,838,750 cubic metres per year.

Innovative forestry practices agreement

The NSIFS entered into an IFPA with government in 1998. A forestry plan is required to outline the innovative forestry practices to be undertaken in the area covered by the agreement. Once the forestry plan is approved, the holders may make a request to the Forest Service regional executive director that the allowable annual cut associated with their licences be increased based on the innovative forestry practices. The process for reviewing harvest levels for licences linked to an IFPA is not part of the Timber Supply Review process.

Regional economy

Although the communities in the Merritt TSA are not particularly homogeneous and/or single-industry dependent, they are also not economically

well-diversified. The public sector, forestry and tourism are the major employment sectors, with agriculture, construction and mining also contributing to the local economy. In terms of income flowing into the region, however, the public sector and forestry are overwhelmingly the largest contributors to the region's economy.

The forest sector supports numerous other jobs in the area through companies and employees purchasing goods and services from local businesses. Each 100 full-time direct forestry jobs in the Merritt TSA are estimated to support another 20 to 40 jobs, depending on the forestry activity (harvesting or timber processing). In comparison, 100 direct jobs in the public sector support 10 to 20 indirect and induced jobs, while 100 tourism jobs support an additional six to 13 positions.

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Timber supply analysis and forecasts

The Nicola-Similkameen Innovative Forestry Society (NSIFS) prepared a timber supply analysis in 2003 to support their application for a harvest uplift request from the regional executive director. This analysis incorporated a large amount of new data collected subsequent to TSR 2 by the NSIFS under their innovative forest practices agreement. New information included a Vegetation Resource Inventory (Phase 2), revised site productivity estimates, silvicultural regimes and genetic gain assumptions for managed stands, new deer winter range mapping and management objectives and revised landscape level management assumptions.

Due to the urgency the mountain pine beetle has placed on the TSR 3 review for the Merritt TSA, it was decided to use the analysis prepared by the NSIFS as the basis for the TSR 3 AAC decision with some additional analysis to reflect our current understanding of the mountain pine beetle epidemic. A timber supply computer model was used to project a number of possible timber supply forecasts for the next 250 years for the Merritt TSA. Ministry of Forests' staff chose one timber supply forecast that they consider reflects both the best information sources and current forest management assumptions. This timber supply forecast is called the 'base case forecast' and forms the basis for comparison when assessing the effects of uncertainty on timber supply.

The base case is not an AAC recommendation, but rather one of many sources of information the chief forester will consider when setting the AAC. The base case forecast is presented in this report for discussion and comparison; due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the level forecast in the base case.

As Figure 2 shows, the base case timber supply forecast for the Merritt TSA and indicates that the initial harvest level of 1,994,671 cubic metres can be maintained for 40 years. After that, harvest levels decline by approximately 10% per decade for two decades before reaching the long-term harvest level of between 1.61 to 1.65 million cubic metres per year.

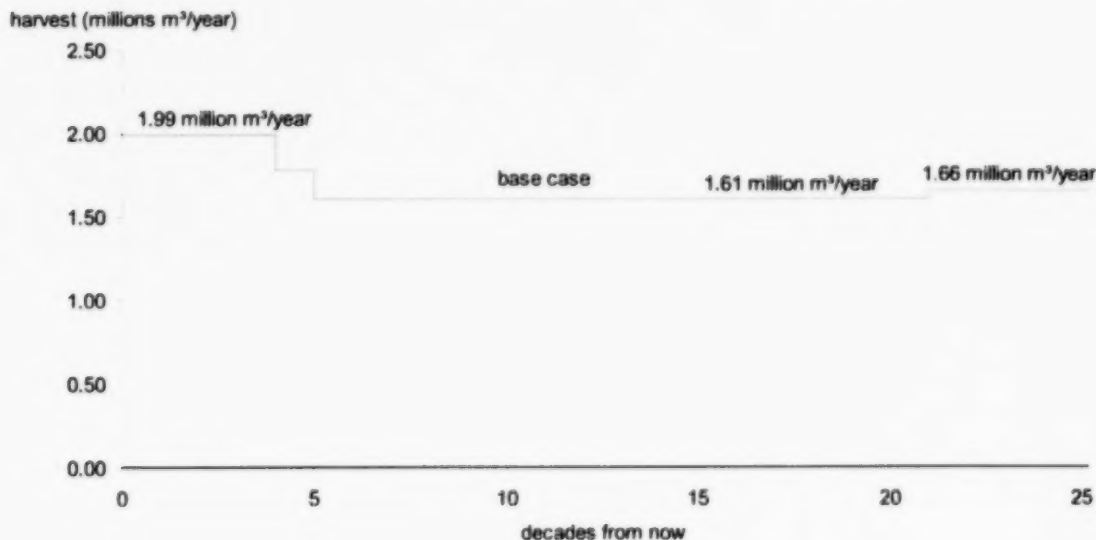


Figure 2. Base case harvest forecast for the Merritt TSA, 2005.

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Sensitivity analyses: examining uncertainty

Because forests are complex, and there are uncertainties in the data and management assumptions employed in any timber supply analysis, timber supply analysts assess how the base case timber supply forecast might be affected by uncertainties in the data and management practices. These uncertainties are generally examined through what are called sensitivity analyses, which the chief forester will consider in determining an AAC. The sensitivity analyses assess how sensitive the base case timber supply forecast is to

changes in information or management practices by making a change to a single information or management assumption in the timber supply model and examining its impact on timber supply relative to the base case.

In the Merritt TSA, a number of sensitivity analyses were conducted in the NSIFS timber supply analysis to examine the stability of the base case timber supply in light of uncertainties. Two key sensitivity analyses are presented to illustrate the impact of uncertainty in the information used in the base case analysis.

The first sensitivity analysis shows the impact of reducing the volume in existing unmanaged stands by 5% (Figure 3) and is presented because there is uncertainty regarding existing stand volumes. The impact of reducing existing stand volume by 5% is an immediate reduction in timber supply of 5.3% relative to the base case and this reduction continues for 50 years. The long-term harvest level is similar to that of the base case as long-term harvest is reliant on managed stands rather than existing stands.

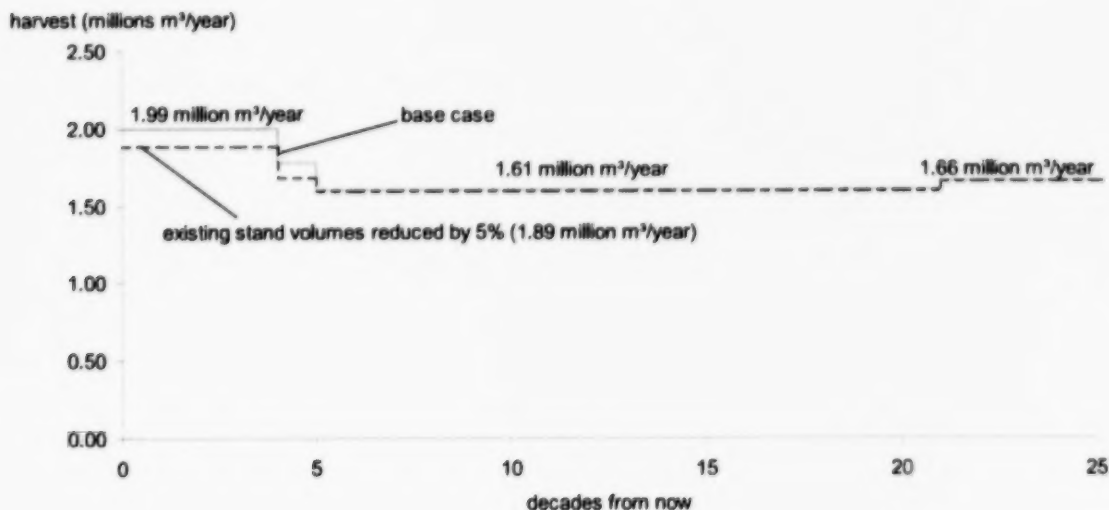


Figure 3. Existing stand volumes reduced by 5% — Merritt TSA, 2005.

Public Discussion Paper

The second sensitivity analysis shows the impact of reducing managed stand volumes by 10% as shown in Figure 4. This sensitivity is shown as there is uncertainty whether site productivity estimates used in the analysis

for managed stands will be realized operationally and volume predictions are highly dependent on site index. Reducing managed stand yields by 10% starts impacting harvest levels significantly in the mid-term as managed stands

become merchantable and are harvested more extensively. In this analysis, a 10% reduction in managed stand yields leads to a reduction in mid- and long-term harvest levels of about 12%.

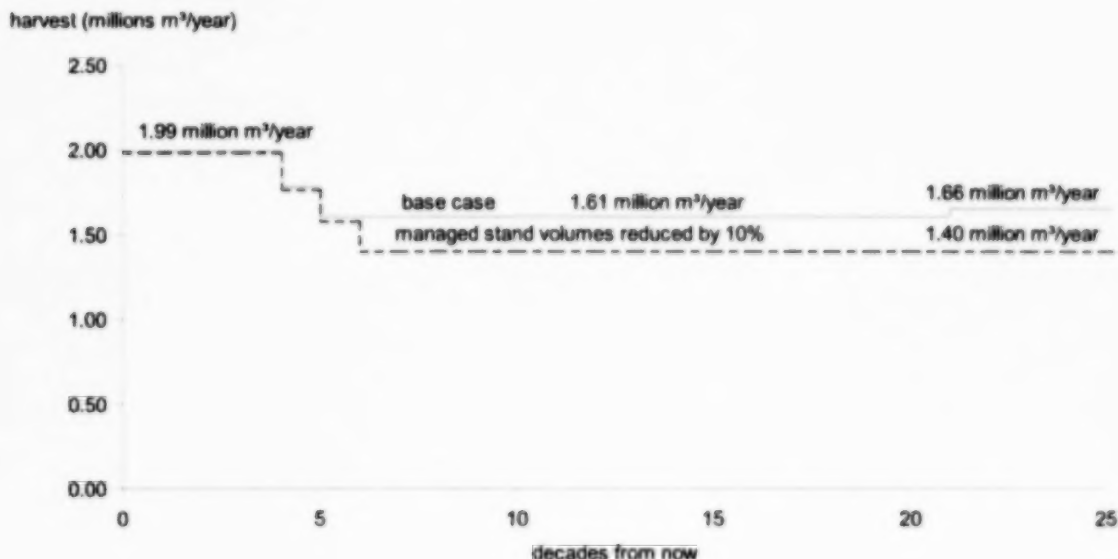


Figure 4. Managed stand volumes reduced by 10% — Merritt TSA, 2005.

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Mountain pine beetle considerations

Mountain pine beetles (MPB) are the most damaging insect that attack lodgepole pine in western Canada. The insect is a bark beetle, a small, cylindrical insect that attacks and kills trees by boring through the bark and mining the phloem — the layer between the bark and wood of a tree. The beetles also carry a fungus that causes a blue stain to the wood from beetle-killed trees.

Figure 5 shows the extent of the beetle infestation in the southern portion of the province as observed from overview flights in 2004.

It is estimated that the volume of mature (greater than 60 years old) timber on the timber harvesting land base of the Merritt TSA is approximately 116 million cubic metres. Of this, about 60 million cubic metres (50%) is lodgepole pine. Forest health surveys indicate that about 4.5 million cubic metres of pine are currently affected by the beetle. If one assumes that the beetle infestation in this TSA stops today and the beetle-killed wood is useable for sawlogs for five years, then there will be no need to increase the AAC. Harvesting at the current level will be sufficient to recover almost all the affected timber in less than three years.

However, an immediate halt to the beetle infestation is not likely. Scientists expect that the beetle population will be halted if

a) there is a sufficiently long period of cold weather (-25 degrees C in the early fall or late spring, or sustained winter temperatures of less than -40 degrees C), or b) the population collapses due to a shortage of mature pine. Since we expect the recent trend of warm winters in British Columbia to continue and there are about 55 million cubic metres of un-infested pine in the Merritt TSA, we project that there will be further kill of pine trees in the TSA.

Proposed objectives and strategy to deal with the beetle infestation

The district's strategy to deal with the epidemic is to harvest areas of recent attack quickly and aggressively in attempts to slow or delay the population expansion. This would allow for extended harvesting in the mature lodgepole pine stands while reducing the threat to immature lodgepole pine stands.

Mountain pine beetle populations within the Merritt TSA are currently at low or moderate levels of infestation so management strategies are likely more successful than in other timber supply units in the northern interior where the infestation already covers vast tracts of timber. The Merritt TSA also has a diverse landscape in terms of elevation and species mix that make management of the

mountain pine beetle more probable.

Thus, the Cascades Forest District's objectives in responding to this infestation include:

- Limiting further damage to forest and environment.
- Extending the existing abundance of mature lodgepole pine to offset future potential timber supply shortages.
- Reducing the threat to immature lodgepole pine stands (40 to 80 years old), which are the future harvestable stands of the TSA.
- Recovering the highest value from infested timber and minimizing unsalvaged losses.
- Enhancing First Nations opportunities in conjunction with Forest and Range Agreements.
- Directing harvest of AAC and potential uplift volumes to high-priority mountain pine beetle infested stands.
- Developing new tenure opportunities to harvest mountain pine beetle stands.

The District proposes to secure funding for annual detailed overview flights to closely track beetle activity and direct harvesting. Consideration will be given to further develop strategies to increase the salvage of dead wood in the TSA.

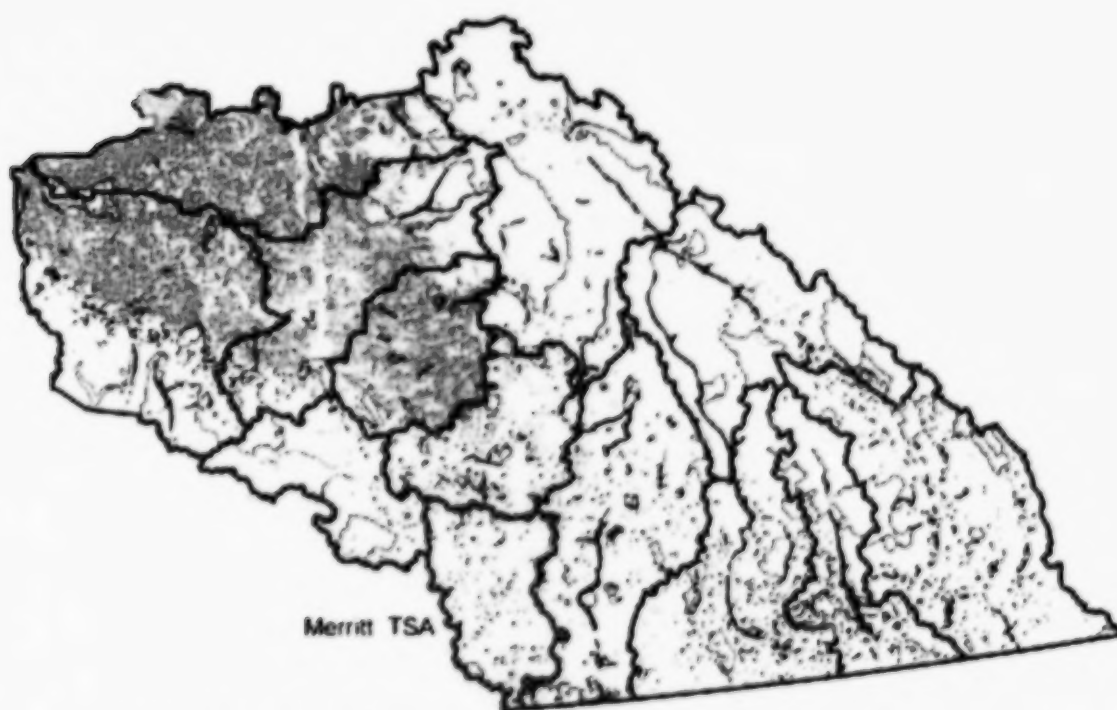


Figure 5. The Southern-Interior Forest Region showing the intensity and extent of the mountain pine beetle infestation.

Public Discussion Paper

During the past year the area affected by beetles in the Merritt TSA increased by a factor of four. It is unclear how successful the District will be in controlling the rate of spread of beetles during the current outbreak. Figure 6 shows a scenario if we are able to reduce the rate of spread of the beetle infestation to 50% per year for the next 5 years. For example, if there are currently 4.5 million m³ affected and we harvest 0.5 million m³ the remaining 4.0 million m³ will increase by 50% to 6.0 million m³ next year. Under this scenario the harvest is increased by 0.5 million cubic metres/year for 5 years to 2.34 million cubic metres/year. After the first 5 years the

harvest level is about 2.5% below the base case until the end of the fourth decade. From the fifth decade onwards the harvest levels are the same as those for the base case. Using these assumptions we are able to harvest all wood while they are still of merchantable sawlog quality.

Figure 7 shows a scenario if the beetle infestation continues for the next 5 years as we have experienced in the central-interior of the province. Under this scenario we assume we are unable to slow or control the rate of beetle expansion. Lightly- and moderately-attacked stands today will become progressively worse and stands currently free of beetles will

become infested. In this situation we propose to increase harvest levels by 1.0 million cubic metres/year for 5 years in order to harvest beetle-killed timber in the stands we expect to become heavily infested. After the first decade harvest levels are about 20% lower than the base case until about six decades from now. Under this scenario we assumed a shelf life of 5 years (i.e., beetle-killed trees remain sawlog quality for 5 years) and project that about 13.5 million cubic metres of timber will become unusable. This unusable timber will be in lightly-attacked stands which we reserved for harvesting in the medium term.

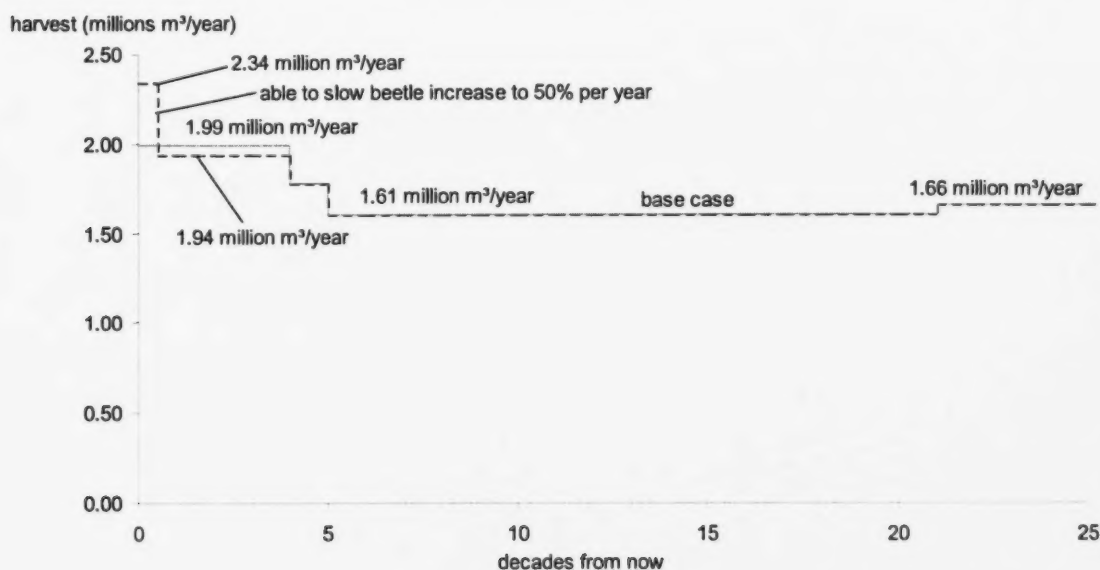


Figure 6. Harvest projection if we are able to slow beetle increase to 50% per year — Merritt TSA, 2005.

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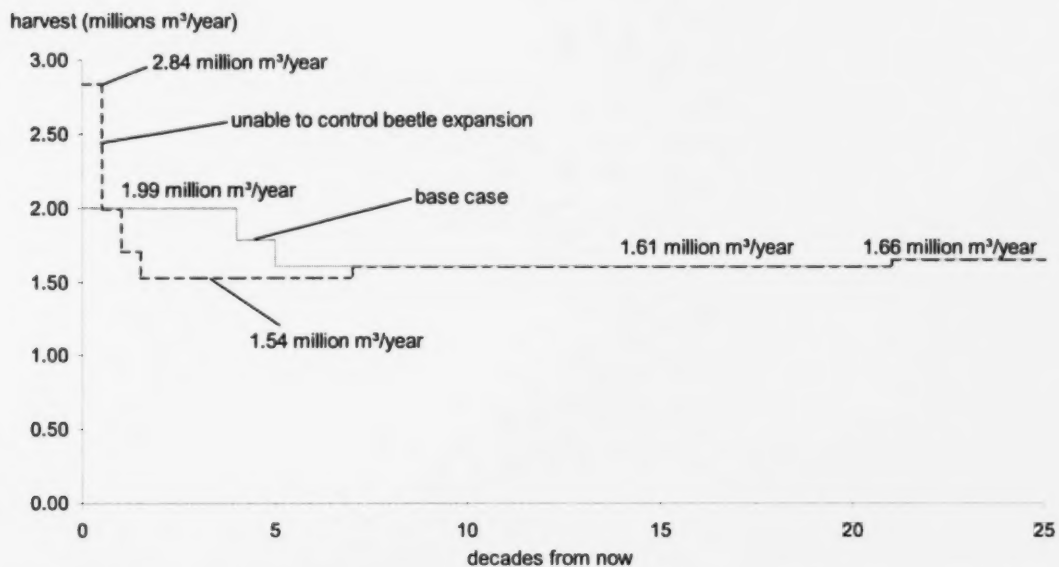


Figure 7. Beetle expansion continues as experienced in the central interior of B.C. — Merritt TSA, 2005.

Public Discussion Paper

Implications of changes in the AAC

Environmental implications

The recent increase in the mountain pine beetle population in the Merritt TSA will inevitably affect the structure of the forests. The Cascades Forest District is revising forest management strategies where necessary to mitigate the impact on the environment and the functioning of area watersheds.

To offset environmental implications, the Forest District will develop management strategies to consider, among other things, values related to First Nations, watersheds, old-growth management areas, visual quality objectives, harvesting priorities, non-susceptible species retention and wildlife trees.

First Nations implications

The Nlaka'pamux Nation and the Okanagan Nation have traditional territories within the Merritt TSA. Currently, six First Nation communities are located in the TSA with a combined population of about 2,360 people. These are the Coldwater Band, Lower Nicola Band, Nooaitch Band, Shackan Band, Upper Nicola Band and Upper Similkameen Band. Other First Nations communities located outside the TSA have reserves and traditional interests within the TSA.

First Nations have expressed concerns regarding possible harvesting impacts on their values including ethno-botanical forest resources and areas of cultural, medicinal and spiritual importance, as well as on fisheries and wildlife resources.

These concerns need to be considered in the planning process.

Currently, traditional use information is available to help guide planning processes, however, there are gaps with this information. First Nations have expressed the need to secure additional funding that would allow this information to be considered and incorporated into the planning process.

More recently, some bands have questioned the impacts of stand tending practices on small furbearing mammals. Requests have also been received for the re-introduction of fire into the ecosystem to maintain certain botanical species. Several First Nations have expressed interest in securing wood supply and several are actively participating in the forest industry, including membership in the Nicola-Similkameen Innovative Forestry Society.

The Ministry of Forests intends to fulfill its legal obligation to consult with First Nations in conjunction with the release of this public discussion paper.

Community implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The base case harvest forecast for the Merritt TSA suggests a harvest level of close to two million cubic metres could be maintained, and this could be increased to as much as 2.8 million cubic metres a year in response to the mountain pine beetle infestation. There would be an increase in employment or other industry-related changes in

the Merritt TSA forestry sector if the base case level is fully harvested.

Your input is needed

Public input is a vital part of establishing the allowable annual cut. Feedback is welcomed on any aspect of this discussion paper or any other issues related to the urgent timber supply review for the Merritt TSA. Ministry staff would be pleased to answer questions to help you prepare your response. Please send your comments to the forest district manager at the address below.

Your comments will be accepted until May 12, 2005.

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

For more information contact and/or mail your comments to:

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<http://www.for.gov.bc.ca/hts>

Public Discussion Paper

Background information regarding TSR

The chief forester's responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the *Forest Act*, Section 8. It states that the chief forester shall specifically consider the following factors:

1. production that may be sustained from the area, taking into account:
 - the composition of the forest and its expected rate of growth;
 - the time that it will take the forest to become re-established;
 - silviculture treatments, including reforestation;
 - standards of timber utilization;
 - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
4. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.

